

1 I Claim:

2 1. A reverse atomization chamber apparatus used for attachment to aircraft for the  
3 delivery of pesticides to a target area with the desire to reduce fines output during atomization,  
4 which apparatus comprises:

5 a reverse venturi chamber open a each end, said chamber being divided into two sections,  
6 a left section and a right section, each section having two segments, each of which segments has  
7 a top wall and bottom wall, the outer segments having the same radius concave radius upper wall  
8 and convex radius lower wall; while the inner segment have a same radius convex radius upper  
9 wall and a concave radius lower wall;

10 a nozzle injector having a nozzle thereon disposed on one side in the inner segment, said  
11 injector being adapted for connection to a fluid source of pesticide, said nozzle being chosen such  
12 that exiting pesticide will not impact the walls of said chamber; and

13 wherein the radii of the segments of the chamber are chosen such that the speed of  
14 atomization of the fluid pesticide by the incoming air is slowed down to reduce fines upon impact  
15 with the pesticide, and the speed of the pesticide air mixture on exiting the chamber is increased  
16 to substantially match the airspeed of the aircraft.

17 2. The reverse venturi atomization chamber apparatus of claim 1 wherein the nozzle  
18 injector is vertically disposed.

19 3. The reverse venturi atomization chamber apparatus of claim 1 wherein the nozzle  
20 injector is horizontally disposed.

21 4. The reverse venturi atomization chamber apparatus of claim 1 wherein the speed of  
22 impact of the incoming air with the pesticide is within the range of 40mph to 80mph.

23 5. The reverse venturi atomization chamber apparatus of claim 1 wherein the radii chosen  
24 for the chamber are chosen based on an airspeed of 100mph for the plane and a desired impact  
25 speed of incoming air with the pesticide of about 50mph.

26 6. The reverse venturi atomization chamber apparatus of claim 1 used for attachment to  
27 aircraft for the delivery of pesticides to a target area with the desire to reduce fines output during  
28 atomization wherein for both the left and right sections of the chamber, the outer segments have  
29 the same radius concave radius upper wall convex radius lower wall, while the inner segments  
30 have a same radius convex radius upper wall 1 and a concave radius lower wall, and the spacing  
31 between the outer segment upper and lower walls, and at spacing between the inner segment  
32 upper and lower walls of both sections of the apparatus are the same.

33 7. The reverse venturi atomization chamber apparatus of claim 1 wherein used for

1 attachment to aircraft for the delivery of pesticides to a target area with the desire to reduce fines  
2 output during atomization wherein for both the left and right sections of the chamber, the outer  
3 segments have the same radius concave radius upper wall convex radius lower wall, while the  
4 inner segments have a same radius convex radius upper wall and a concave radius lower wall,  
5 and the spacing between the upper and lower walls, and at a finite lateral point, between the outer  
6 segment of one section is greater than the spacing between the upper and lower walls between  
7 the outer segment at the same finite point on the other section.

8 8. A reverse atomization chamber apparatus used for attachment to aircraft for the  
9 delivery of pesticides to a target area with the desire to reduce fines output during atomization,  
10 which apparatus comprises:

11 a venturi chamber open a each end, said chamber being divided into two sections, a left  
12 section and a right section, each section having two segments, each of which segments has a top  
13 wall and bottom wall, the outer segments having the same radius concave radius upper wall and  
14 convex radius lower wall; while the inner segment have a same radius convex radius upper wall  
15 and a concave radius lower wall; and one of said section having an upper midport and a lower  
16 midport, said midports being in the section having a greater spacing between upper and lower  
17 walls between the outer segment at the same lateral finite point as on the other section;

18 a nozzle injector having a nozzle thereon disposed on one side in the inner segment, said  
19 injector being adapted for connection to a fluid source of pesticide, said nozzle being chosen such  
20 that exiting pesticide will not impact the walls of said chamber; and

21 wherein the radii of the segments of the chamber are chosen such that the speed of  
22 atomization of the fluid pesticide by the incoming air is slowed down to reduce fines upon impact  
23 with the pesticide, and the speed of the pesticide air mixture on exiting the chamber is increased  
24 to substantially match the airspeed of the aircraft.

25 9. The reverse venturi atomization chamber apparatus of claim 8 wherein the injector in  
26 the section having the midports.

27 10. The reverse venturi atomization chamber apparatus of claim 8 wherein the injector  
28 in the section lacking the midports.

29 11. The reverse venturi atomization chamber apparatus of claim 8 wherein the nozzle  
30 injector is vertically disposed.

31 12. The reverse venturi atomization chamber apparatus of claim 8 wherein the nozzle  
32 injector is horizontally disposed.

33 13. The reverse venturi atomization chamber apparatus of claim 8 wherein the speed of

1 impact of the incoming air with the pesticide is within the range of 40mph to 80mph.

2 14. The reverse venturi atomization chamber apparatus of claim 8 wherein the radii  
3 chosen for the chamber are chosen based on an airspeed of 100mph for the plane and a desired  
4 impact speed of incoming air with the pesticide of about 50mph.

5 15. The reverse venturi atomization chamber apparatus of claim 8 wherein the radii  
6 chosen for the chamber are chosen based on an airspeed of 180mph for the plane and a desired  
7 impact speed of incoming air with the pesticide of about 90mph.

8 16. The reverse venturi atomization chamber apparatus of claim 1 wherein the radii  
9 chosen for the chamber are chosen based on an airspeed of 180mph for the plane and a desired  
10 impact speed of incoming air with the pesticide of about 90mph.

11 17. A reverse atomization chamber apparatus used for attachment to aircraft for the  
12 delivery of pesticides to a target area with the desire to reduce fines output during atomization,  
13 which apparatus comprises:

14 a venturi chamber open at each end, said chamber being divided into two sections, a left  
15 section and a right section, each section having two segments, each of which segments has a top  
16 wall and bottom wall, the outer segments having the same radius concave radius upper wall and  
17 convex radius lower wall; while the inner segment have a same radius convex radius upper wall  
18 and a concave radius lower wall; and one of said section having an upper midport and a lower  
19 midport, said midports being in the section having a greater spacing between upper and lower  
20 walls between the outer segment at the same lateral finite point as on the other section;

21 a nozzle injector having a fan shaped nozzle thereon disposed on one side in the inner  
22 segment of the section having the upper and lower midports, said injector being adapted for  
23 connection to a fluid source of pesticide, said nozzle being chosen such that exiting pesticide will  
24 not impact the walls of said chamber; and

25 wherein the radii of the segments of the chamber are chosen such that the speed of  
26 atomization of the fluid pesticide by the incoming air is slowed down to reduce fines upon impact  
27 with the pesticide, and the speed of the pesticide air mixture on exiting the chamber is increased  
28 to substantially match the airspeed of the aircraft.

29 18. The reverse venturi atomization chamber apparatus of claim 17 wherein the radii  
30 chosen for the chamber are chosen based on an airspeed of 180mph for the plane and a desired  
31 impact speed of incoming air with the pesticide of about 90mph.

32 19. The reverse venturi atomization chamber apparatus of claim 17 wherein the fluid is  
33 injection at a 0-degree angle to the airflow.

34 20. A reverse atomization chamber apparatus used for attachment to aircraft for the

1 delivery of pesticides to a target area with the desire to reduce fines output during atomization,  
2 which apparatus comprises:

3 an open ended, flat side walled chamber, divided into left and right sections, each having  
4 outer and inner segments, each segment having a top and bottom wall, the outer segments having  
5 a same radius concave upper wall and a convex lower wall, while the inner segments have a same  
6 radius convex radius upper wall and a concave lower wall; and

7 a nozzle injector connected to a fluid pesticide source, disposed in one of said inner  
8 segments.

9 21. A reverse atomization chamber apparatus of claim 20 wherein one of said sections  
10 is of a greater elevation than the other of said sections, the larger section including upper and  
11 lower midports.